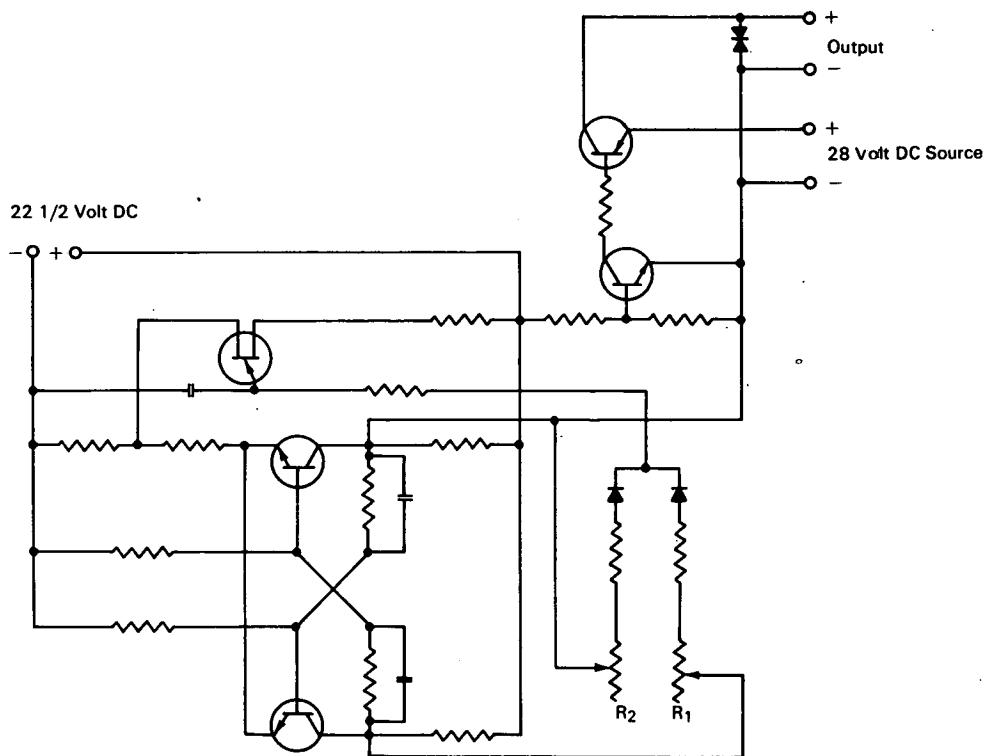


NASA TECH BRIEF



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Variable-Pulse Switching Circuit Accurately Controls Solenoid-Valve Actuations



The problem:

To devise an adjustable switching circuit that will operate a 28 volt dc solenoid valve at precise time intervals.

The solution:

A solid state circuit that generates adjustable square wave pulses of sufficient power to operate a 28 volt dc solenoid valve.

How it's done:

The circuit includes a pulse-forming branch (flip-flop) and sufficient amplification to power the operation of the solenoid valve from a 28 volt dc source. The flip-flop is powered by an independent 22 1/2 volt battery. Pulse width (on time) can be varied over a range of 10 to 40 milliseconds by adjusting potentiometer R_1 . Similarly, the interval between pulses (off time) can be varied over a range of 8 to 350 milliseconds by means of R_2 .

(continued overleaf)

Notes:

1. This type of circuit has been used in conjunction with a solenoid valve for precise time control of fluid flow in combustion experiments. With a suitable arrangement of relays, the circuit can be used for sequencing of multiple flows in various processes requiring precise timing.
2. Inquiries concerning this invention may be directed to:

Technology Utilization Officer
Marshall Space Flight Center
Huntsville, Alabama 35812
Reference: B67-10022

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D. C. 20546.

Source: J. D. Gillett,
of North American Aviation, Inc.
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